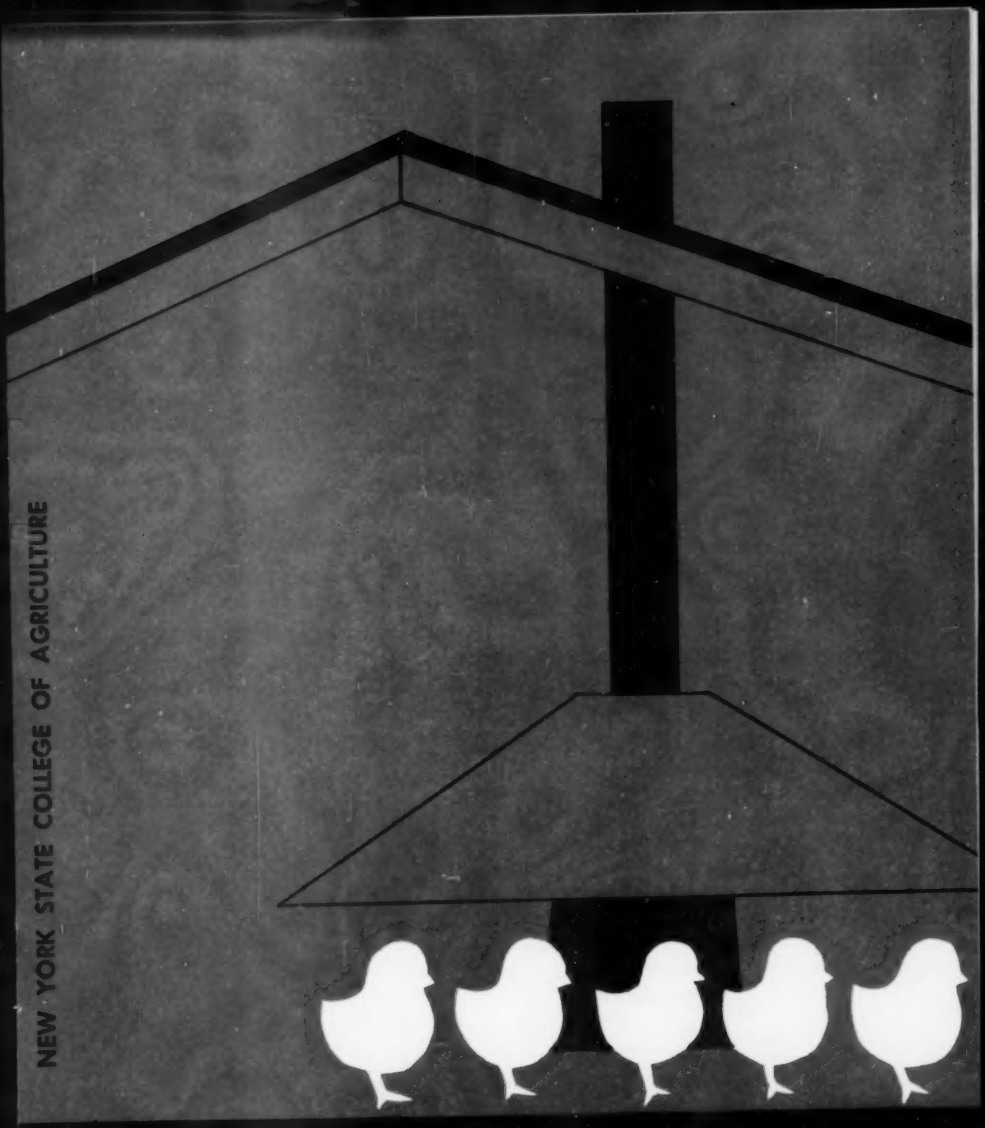

NEW YORK STATE COLLEGE OF AGRICULTURE

BROODING CHICKENS IN COLONY HOUSES

D. R. MARBLE AND E. A. SCHANO

CORNELL 4-H CLUB BULLETIN 114

Brooding Chickens in Colony Houses

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The colony house system of brooding chickens is the most common and practical way for 4-H Club members to brood chicks and is probably the least expensive. The 10 feet by 12 feet colony house is particularly adapted to projects in which 100 to 250 chicks are to be brooded at one time. Not more than 250 chicks should be reared in a 10 feet by 12 feet house. If more than 1000 chicks are to be reared, a permanent brooder house and range shelters provide the most efficient means of handling growing chickens.

PLANNING FOR THE CHICKENS

Under modern conditions a good poultryman will rear 95 percent of chicks placed in the brooder house. Success depends on a good start.

It is impossible to over-emphasize the necessity of starting with chicks from vigorous parents, free from pullorum disease, and bred for egg production or for meat production, whichever is the objective.

Pullets for egg production should be hatched early so they will be laying during summer and fall when egg prices are highest. Good meat birds come from rapid-growing, rapid-feathering strains that have been selected for uniformity in type.

Figure 1. A portable brooder house. Note the rafter ventilator in front and the sliding windows. There is a rafter ventilator in the rear similar to the one in front.

It is usually advisable to replace all of the heavy-breed layers, such as Rhode Island Reds, crossbreds, and the like, each year. The lighter breeds such as White Leghorns make better second year layers than the heavy breeds, but the trend today is toward a 100 percent pullet flock.

REARING RANGE

The kind of soil best adapted to growing chickens is a sandy or gravelly loam that can be cultivated easily. The land should always be in sod when the chickens use it.

Good pasture reduces the cost of growing pullets from 10 to 15 percent. One of the secrets of maintaining a good pasture or range is to cut it frequently and not to overstock it. Under average seasonal conditions, one acre of good pasture provides ample green feed for 600 growing pullets.

The range should be within sight of the farm house and not too far from other farm buildings. It is unwise to have a range along a well-traveled highway, unless there is a fence to prevent the chickens from running onto the road, for many may be killed by passing automobiles.

Drainage and shade

Ranges on wet, poorly drained soil or in dense shade are poor investments, for coccidiosis organisms and roundworm eggs thrive best under such conditions. Shady places also harbor slugs and certain insects that are the carriers of tapeworm infection. Natural shade is desirable, but it should not be so dense that it prevents the sun from shining on the ground for long periods during the day. Artificial shade should be provided if no other shade is available.

EQUIPMENT AND PREPARATION OF HOUSE

Old houses should be cleaned and disinfected and new ones made ready a few days before the chickens are expected.

Pen equipment (From first day to fourth week)

One feed trough from 2 to 3 inches deep and 4 feet long for each 100 chicks
One 1-gallon or two 1-quart fountains for each 100 chicks
Chick guard to be used from 5 to 7 days (wire, board, or paper)
Heater with hover
Litter
Blocks for the feeders

Additional equipment (From fourth to tenth week)

One 5-gallon water fountain for each 150 chicks
Wire-covered stand 6 inches high for water fountains
Roosting poles
One feed trough from 4 to 5 inches deep and 4 feet long for each 50 chicks

Cleaning

The best way to clean a brooder is to remove all roosts, fixtures, and equipment, to sweep down all dust and cobwebs, to wash the windows, and to clean the floor by scraping off all dried material. The floors and about 1 foot of the adjoining side walls should be scrubbed with a strong solution of hot lye (about 3 ounces of household lye to each gallon of water; boiling hot water is best). Care should be taken not to get the solution on any part of the body. The solution should be applied with a stiff broom. The ceiling and unwashed walls may then be sprayed with a 3 percent solution of cresol disinfectant. Such a solution is made by mixing 3 ounces ($\frac{1}{2}$ pint) of the disinfectant with 1 gallon of water.

The floor should be flooded with the cresol solution. Feed troughs, drinking vessels, hovers, and other equipment should be washed with the cresol solution or with a similar disinfectant. It is good practice to have an old oil barrel or tank filled with the cresol solution in which to disinfect such equipment.

Carbolineum or mite paints containing anthracene oil are often used as a mite destroyer and as a disinfectant in a brooder house. Two or three weeks should be allowed for the material to soak in and the fumes to disappear before the chicks are put in the brooder house. When baby chicks are placed in a house immediately after the use of these disinfectants, lung injury and death may result.

Overhauling heaters

The heating apparatus should be overhauled and placed in first-class working order. It is best to operate the brooder for a few days before the chickens are due, because this identifies any defects and gives the operator a chance to make necessary changes. By this practice the houses are made warm, dry, and comfortable for the chickens when they arrive.

Litter

Shavings, sugar-cane fiber, or finely cut straw make the best litter because they are clean, free from dust, easily removed and replaced, and generally cheaper than other litter.

It is important in disease control to keep the litter dry. Two or three inches of litter are enough at the start, but this should be increased later. When the chicks are from eight to ten weeks old, the litter should be 4 or 5 inches deep. Deep litter must be stirred daily to keep it dry. Forking or raking it over once a day usually is necessary. Wet or packed down litter around the watering fountain should be promptly replaced with fresh material or with dry litter from other parts of the floor. Usually it is not necessary to replace the entire litter during the period of brooding unless it becomes damp, very dirty, or coccidiosis appears. Generally there is less trouble with disease when each brood of chicks is started on new clean litter.

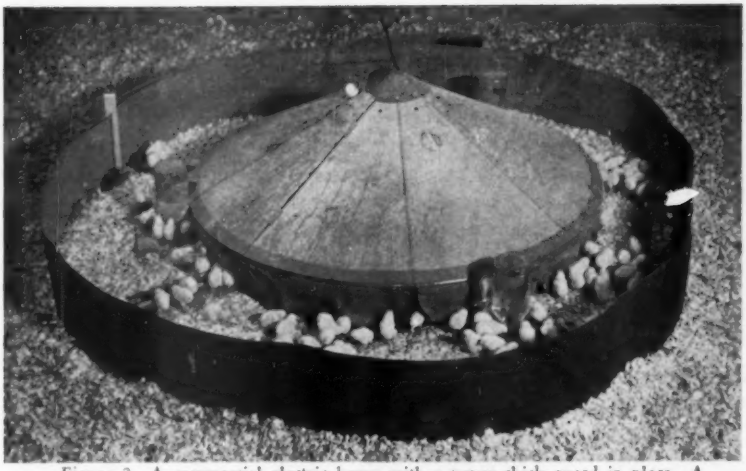


Figure 2. A commercial electric hover with a paper chick guard in place. A wooden pin (upper left) holds the ends of the guard in place.

Floor space

Best results are obtained when the brooder house is not overcrowded. Overcrowding slows up growth, increases the chances of disease, and leads to cannibalism and feather picking. The amount of floor space allowed depends on the length of time the chickens are to be confined.

Chickens that are grown to maturity in confinement should have more space as they grow. The usual rule is to provide pullets with not less than 1 foot of floor space up to eight weeks of age; 2 feet from eight to twelve weeks; and 3 feet from 12 weeks to maturity. Unless additional space is provided, there may be serious outbreaks of cannibalism and feather picking.

Hover space

Hover space varies with the type of brooder. For coal, oil, and gas heated hovers, the number of chickens accommodated depends on the area of comfortable space on the floor around or near the hover. Seven square inches may be used as a guide. More attention should be given to the space under electric hovers and where infra-red lamps are used than under other kinds, especially in cold weather, because there is little heat outside the hover or heated area. Ten inches space should be allowed under electric hovers.

Drinking fountains

Two-piece metal, earthenware, or glass fountains are used. Usually, one 1-gallon or two 1-quart fountains are enough for 100 chicks when they are small. Later on, a 3- or 5-gallon fountain should be provided.

The desirable fountains have a drinking rim so designed that it is difficult for the chicks to get into the water and drown.

Chick guards

A circle of ½-inch mesh hardware cloth or some similar material 15 inches wide should be set up from 15 to 18 inches outside the brooder hover when the chicks are first placed in the brooder. If there is danger of floor drafts, boards or building paper should be used (figure 2). The use of this circle teaches the chicks to return to the brooder for warmth. After a day or two, the guards should be enlarged to give more space; later they should be removed entirely.

OUTSIDE YARDS

The chicks should be kept busy at all times. This may be done by allowing them to run out-of-doors every day when weather and season permit, after they are five or six days old. When the chickens are first permitted to go out-of-doors, they should be confined to a small yard until they learn the way back into the house. Later, these fences should be removed and the chicks given free range.

The handiest fencing material is 1-inch-mesh chicken wire 2 feet wide. It should be carefully pegged to the ground, because young chickens are quick to find holes under it.

All openings under the brooder house should be blocked with 1-inch-mesh chicken wire.

The approach to the brooder house should be made of sods or a frame covered with ¾-inch hardware cloth, so it is easy for the chickens to enter. This precaution may prevent losses from accidents.

Figure 3. A wire-covered frame for drinking fountains. Note how the wire extends down the sides of the frame to strengthen it. These frames confine the drip from the fountain and help to keep the pens sanitary

STARTING THE CHICKENS

The first few days in the brooder are important in the life of chickens, for habits acquired then may have a serious effect on their future growth.

Brooder temperature

The temperature under the edge of the hover, if there is one, 2 inches from the litter should be from 95° to 100°F. the first week, from 90° to 95°F. the second week, and gradually lowered until no heat is needed. It is best to keep the temperature as low as possible and still have the chickens comfortable. The amount of heat and the length of time it is needed depend on the season and the day. The heater should, however, be left in the brooder house a while after the heat is discontinued for possible use in unfavorable weather.

When the chicks spread out in a circle at night under the inner edge of the hover, the temperature is correct. The temperature under the hover should never drop to the point where the chicks are uncomfortable. Chickens seem to feather better if the room is kept not too warm, but is just comfortable, and if they have an opportunity to exercise out-of-doors or in an adjoining room that is cool. Enough heat should be provided, however, under the hover in the daytime and at all times so that young chicks that become chilled can get warm quickly. Too high temperatures encourage cannibalism and sap the vitality of the chicks. Overheating or chilling causes a diarrhea and many deaths; when pullorum disease is present, chicks are more susecptible to it. It is important, therefore, to try to maintain as even a temperature under the hover as possible.

Crowding

Crowding at night is usually the result of chilling, overheating, drafts, or rays of light. The temperatures should be carefully watched the first few days. A chick guard should be used around the hover the first two or three days, and the space outside the hover made larger each day. Later, when the guard is removed, the corners of the pen should be blocked with straw, wire, or wide boards, to prevent possible crowding. The wire or boards must be so arranged that the chicks cannot jump down behind it after a few days. The club member should be on hand at roosting time, especially the first day the chicks are placed in the brooder. If the chickens crowd, they should be spread around the hover. If crowding persists, a 10-watt electric light or a lantern may be placed over the hover. Usually the light checks crowding. More than a 10-watt bulb makes the pen too light and increases the charge for power.

Ventilation

When the chicks are small, it is usually advisable to keep the house air-tight on three sides and to see that there are no cracks in the floor. Provision should be made for an adjustable outlet or ventilator at the highest point in the room. An adjustable intake also should be provided. This is done in the Cornell colony brooder houses by regulating the opening of the front windows. Of

course, the size of the opening is determined by the season, the outside temperature, and weather conditions. The ventilators should never be completely closed.

In early spring there is usually a wide range in temperature from midday to midnight. It is important to watch for this and to enlarge the ventilator openings, possibly by taking out one or more front windows during a sunny warm day. It is necessary, of course, to close these extra openings at night. Rapid and extreme changes of temperature are unhealthy.

In hot weather it is advisable to keep the building as comfortable as possible by changing the air in the building frequently, but in such a way as to prevent drafts on the birds. This can be done by opening the windows in the Cornell gable-type brooder house, both back and front, to the fullest extent. Similar openings can be made in the front and at the highest point of any house.

Exercise

Healthy chickens are active. If they are not busy, something is decidedly wrong. The room temperature should be much lower than that of the hover to encourage better feathering and more exercise. A room temperature of from 50° to 60°F. is more desirable than a higher one after the first week. Plenty of fresh air usually keeps the temperature down. Good ventilation is as important during the night as in the daytime.

From the time the chickens are four or five days old they should have an opportunity, if weather conditions permit, to run out-of-doors. This gives them plenty of exercise, exposure to direct rays of the sun, fresh air, and access to green food.

When it is necessary to rear the chickens entirely in confinement, well-ventilated, roomy quarters are an incentive to exercise.

It is not injurious for chickens to run out-of-doors in cold or ordinary wet weather if they have a good warm hover handy when they feel the need for it. Usually, the chickens are bothered less by wind when the runway hole is on the protected side of the house. In most locations the brooder house should face the south for maximum exposure to sunlight.

Old and young stock separate

The brooder house should never be situated so that young and old stock mix on the range. If separation is impossible, it is best to yard the old birds or keep them confined to the house and allow the young stock to have the benefit of free range without the danger of contact with the older birds. Old stock is usually the principal source of infection for coccidiosis, respiratory disease, worms, and the avian leucosis complex (paralyisis, iritis, big liver), and other diseases.

Cannibalism

Cannibalism may be caused by lack of something to do, overcrowded houses, high temperature in the brooder room, lack of feeding space, close confinement,

insufficient feed, or a deficiency in the ration. Chicks that are confined are more likely to develop this trouble than are those running out-of-doors early in life. It is not necessarily the result of a faulty ration.

Sometimes when the chickens apparently have had good care, cannibalism will break out. In such circumstances, one should try one of the following suggestions:

1. Darken the house to the point where the birds can barely see to find feed and water. Bright light or sunlight makes the toes or blood-filled pin feathers more attractive to the chicks.

2. When cannibalism persists, use ruby-red light. This can be done best by darkening the house and painting the windows with red lacquer or paint. All windows must be painted to have a uniform distribution of red light on the floor.

3. Remove the victims promptly and paint the injured parts with pine tar, roofing cement, or any commercial "chick pick." Paint a number of unpicked chicks so many chicks in the flock will quickly get a taste or smell of the remedy and be repelled by it. This usually prevents further injury.

4. Some poultry keepers feed large quantities of whole oats as a preventive of cannibalism and feather picking. This practice is started as soon as the birds will eat the oats readily.

5. Many broiler flocks are now being debeaked to prevent cannibalism and feather picking. This can be done when the chicks are 10 days old, provided not more than one-third of the tip of the upper beak is removed by burning. The lower mandible should be touched to the hot blade to retard growth, but none of the mandible should be cut off. Replacement pullets may be handicapped slightly on range by not being able to utilize the grass quite as efficiently. Consequently, replacement pullets should not be debeaked unless an outbreak of cannibalism occurs.

Early roosting

The use of roosts in a brooding house is recommended to club members growing replacement pullets during the spring months because it helps to prevent overcrowding and smothering. On the other hand, good pullets can be reared to maturity without roosts. Broiler growers do not use roosts as a general rule. Too early roosting may increase the development of crooked breastbones, especially in males. From a management standpoint, it is desirable to get a large proportion of the pullets in the house accustomed to roosting before heat is cut off.

In mid-winter brooding, if electric hovers or the cold-room system of brooding is used, it is almost impossible to make use of early roosting. Heat can be cut off the electric hover when the chicks are from four to six weeks of age if the number of pullets is not too great for all birds to get inside of the curtain, because the birds will create their own heat.

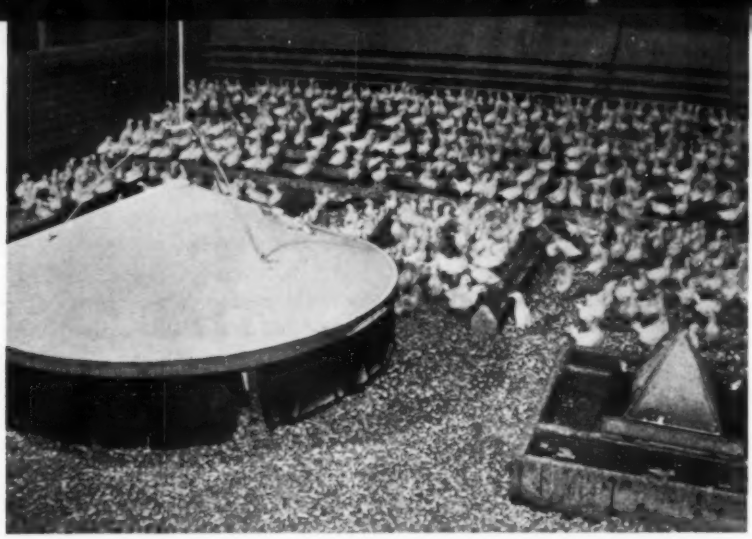


Figure 4. Early roosting saves losses from crowding. These chicks will return to the hover at night until they are six or eight weeks old.

The use of roosts must be adapted to the type of brooding equipment used and also the management practices employed on any given farm. Roosts should not replace the hover but should supplement it for a period of several weeks. The hover can be removed as the weather warms to the point that nights are not often chilly. As long as there are chilly nights, it is advisable to keep both the hover and the roosts in the house.

FEEDING

Baby chicks should be given feed and water within 36 hours after they are hatched. Strong, well-hatched chicks can go without feed up to 60 or 72 hours, but it is difficult for some chicks to stand the strain and some may die. Consequently, it is not advisable to withhold feed longer than 36 hours because the chickens lose weight and vitality rapidly after that time. Feed and water should be ready for the chicks when they are placed in the brooder to prevent their eating litter, droppings, or any other material that is handy.

Baby chicks, should have feed easily accessible, and plenty of feeding space, so they will learn to eat readily. Small trough feeders from 2 to 3 inches deep and 4 or 5 inches wide made of wood or metal may be used during the first few days (figure 5). Some club members feed the mash and grit on papers, egg flats, or cardboard covers, the first day or so, particularly if they are short of feeders,to make sure all the chicks get something to eat.

The trough feeders (figure 6) should have wire guards or a reel to prevent the chicks from getting into the feed. Such protected feeders help to check the waste of feed and tend to prevent the spread of disease by keeping the droppings out of the feed.

Figure 5. Feeders for young chicks for the first three weeks.

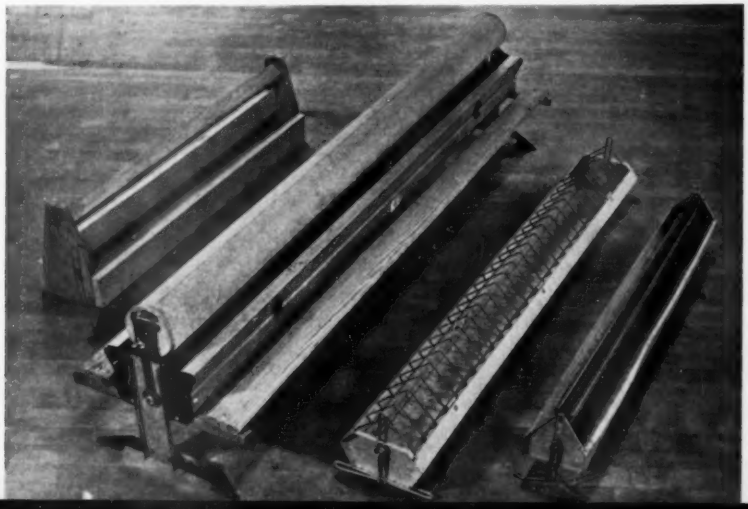
One inch of linear feeder space should be allowed for each chick up to three weeks of age, when the space should be increased to 2 inches.

Boards or planks along the sides of the feeder make it easier for the chicks to reach the feed during the first week. The feeders should be distributed around the hover so all chicks have a chance to eat.

As soon as the chicks have learned to eat out of the feeders, the feeders should be elevated above the litter by placing blocks or bricks under them. A block 2 inches thick can be used at first and higher ones later. The fountains should be placed on wire-covered platforms 6 inches high (figure 3) where litter cannot be easily scratched into them, and the chicks do not come in contact with the wet spots caused when water is spilled from the fountains. Three-fourths or 1-inch mesh wire is used for the top of the platforms.

After the chicks are three or four weeks of age, the smaller feeders should be discarded for larger ones; and, if the birds have an outside range, most of the feeding may be done in properly protected outdoor feeders. At least 1 linear foot of hopper space should be allowed for every 10 birds after they are 10 weeks old; every 6 pullets approaching maturity should have 1 foot. One feeder in each brooder house is useful on rainy days and when the birds have to be shut in.

Figure 6. Intermediate feeders for young chicks from three to ten weeks of age.



Rations and methods of feeding

Good chick mashes contain about 20 percent protein and may be fed during the entire rearing period. No grain is fed during the first month, with the possible exception of the first two days, when some club members prefer to feed grain and no mash. The kind of feed a chick receives during the first few weeks of its life has an important bearing on its growth and development. This is particularly true if the chicks are grown in confinement. Normal chicks double their weight about every two weeks during the first six weeks of their lives. Later, as they approach maturity, growth is less rapid. The ration must contain all the food elements but, particularly, the vitamins and from 18 to 20 percent of protein, if normal growth is to be made early in the life of the chicks. Because cereals alone are low in minerals, vitamins, and protein, mash must be depended upon to supply the proper levels of these elements. This is why all-mash feeding is recommended during the first month. At the end of this time when the protein requirements of the chickens are less, grain feeding is started. The grain is fed in hoppers and kept before the birds constantly. However, the chickens should not eat an amount of grain equal by weight to the mash until they are three months of age.

During the first few weeks, it is advisable to feed the mash in such amounts that it will be possible to give fresh mash twice daily. Later, it is kept before the birds all the time. Occasionally, it may be necessary to restrict the grain to get proper mash consumption. Considerable variation in grain consumption is permissible after the chicks are three month of age. A less expensive growing mash may replace the starting mash after the birds are 10 or 12 weeks old if they have access to good green pasture.

Fine, insoluable grit should be given from the start. A small amount is usually spread on the mash or mixed with the grain at the time of the first feeding. Later, it is kept in separate containers. Oyster shell or fine limestone grit should be provided after the chickens are four months of age, or when they begin to show evidence of reaching maturity (comb development).

Feed wastage

Filling small chick hoppers too full results in rather heavy waste. Exactly how much of the feed pulled over the edges of the hopper is recovered from the litter by the chicks is not known. Observations, however, have shown as high as 45 percent waste of feed by Leghorn chicks during the first six weeks of their growth period when the hoppers were filled full each time. This waste was cut to 15 percent when the hoppers were filled one-half full, five percent when one-third full, and two percent when one-fourth full. Comparable figures for New Hampshire chicks were about one-half as large.

Feed is the most expensive item in the cost of rearing pullets to maturity, and anything that can be done to cut this cost by eliminating waste of feed is important. Feeding more frequently or placing the feed in additional hoppers

adds to the labor cost; consequently, cost of feed wasted must be balanced against the additional labor involved in feeding more frequently or filling additional hoppers.

Other suggestions

The proportion of corn and wheat in the grain mixture may be varied somewhat according to the price of these grains. The feeding of whole oats may be started when the chicks are six weeks of age and whole corn in place of cracked corn at 10 to 12 weeks of age.

Fresh green food is a valuable part of the ration; consequently, a good pasture should be provided when possible.

Chicks started on grain for the first two days learn to eat more readily than those started on mash; the bowels are less laxative and there is less pasting of the vents.

Grain mixture

(Fifth week to maturity)
50 pounds of cracked yellow corn
50 pounds of whole wheat

This mixture is fed with a growing mash designed to be fed with grain.

BROODERS

Good pullets can be grown using one of a wide variety of brooders. Of all the equipment, the heating unit should be given first consideration. Four sources of heat can be used in brooding 4-H flocks: coal, oil, gas, and electricity.

Coal stoves

Coal-burning brooder stoves have been used for many years because of their dependability and the fact that they furnish an ample supply of heat. They are comparatively safe from fire and fairly easy to operate but require regular attention several times each day.

When a coal stove is used, the brooder house should be placed so that trees, buildings, or knolls do not interfere with the draft. The stove pipe should extend 3 feet above the roof. A cap 3 or 4 inches above the end of the pipe helps to prevent back drafts. The stove should be set on a base of brick to lessen the danger

Figure 7. A coal-burning brooder stove. The heat deflectors on most coal stoves are in two parts. A draft eqalizer (A) prevents excessive drafts in windy weather.

of fire. The use of a piece of sheet metal about 4 feet square under the brick base also aids in fire prevention. Place the sheet metal under the stove so that the unused area is at the front of the stove where ashes are removed and danger of fire is greatest.

A metal holder in the roof where the stovepipe passes through is necessary for fire prevention and to keep rain out of the building. An automatic draft equalizer is desirable in the stove pipe to help maintain an even fire on windy days. Chestnut size coal is preferred for brooder stoves.

Oil-burning stoves

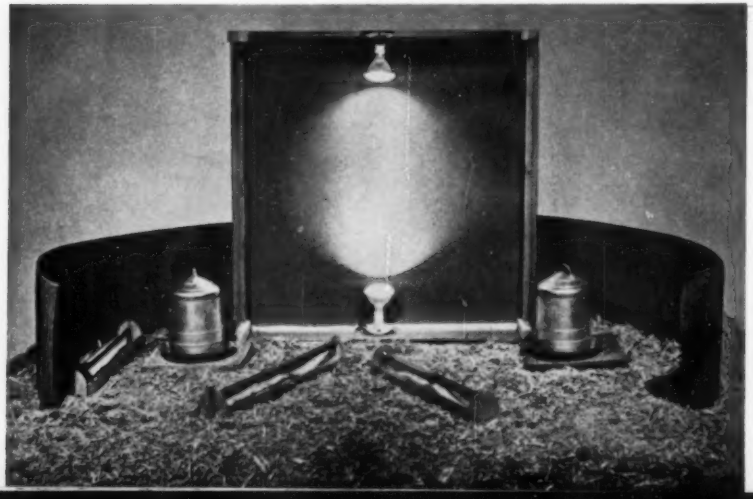
There are many kinds of oil burners. The wick type burner is raised or lowered by hand. It usually burns kerosene. This type cannot be depended on to supply enough heat for winter brooding.

The blast type of burner uses either kerosene or fuel oil and has an asbestos or metal ring that acts as a vaporizer. The temperature is regulated by a thermostat that controls the flow of oil to the burner. This type will supply enough heat for winter brooding and is designed for larger flocks of chickens. The fuel consumption is 2½ to 3 times as great as the wick type.

Oil stoves should be fed from a barrel or tank of oil, usually on the back of the house. They must be set level and require regular attention, especially with respect to daily cleaning of the wicks. The supply pipes should be easy to clean and require a strainer and sediment trap. The blast burner type requires an overflow line and an efficient thermostat control.

The original cost of an oil stove may be lower than for some other kinds of brooders, but the cost of fuel is often higher. In warm weather the oil stove can be more easily regulated to supply only a small amount of heat.

Figure 8. A homemade electric lamp brooder.
Photograph from Rochester Electric and Gas Corporation



Gas stoves

Bottled gas works very well as a fuel for brooder stoves, especially in buildings on range. Gas, when burned as a fuel, creates considerable moisture and consequently good ventilation is essential. It is desirable to have a thermostat to prevent variations in pressure and to maintain an even temperature.

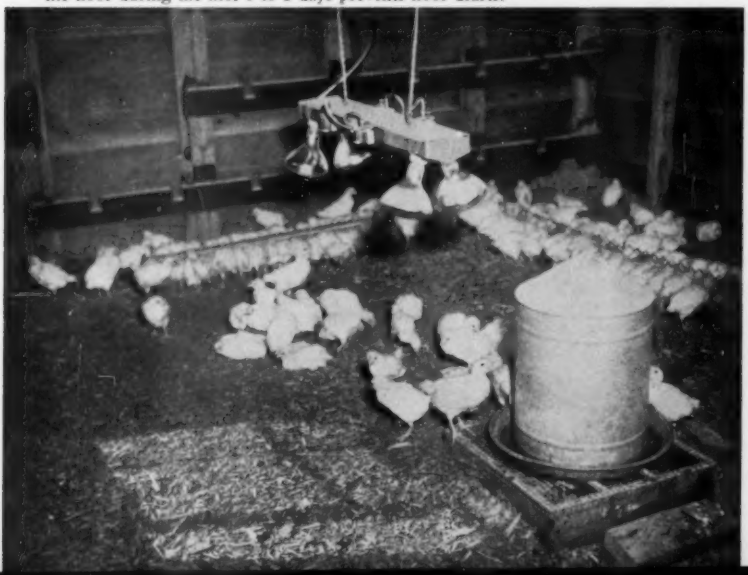
Electric brooders

Electricity is used as a source of heat in two different types of brooders: the conventional hover, and the infra-red lamp unit. Both types create a cold room condition for brooding that tends to increase the fuel cost and may, under extreme conditions, limit the number of chicks that can be brooded at one time under a single unit.

The conventional electric hover should be well insulated, easily ventilated by fan or gravity, and should supply plenty of heat. The heat should be well distributed underneath the hover and the thermostat for the control of the heat should be easily regulated and durable.

Tests have shown that sufficient heat can be supplied for New York weather conditions if the hover is well insulated and is adjusted for height so the curtains conserve heat, and if a deep bed of litter is used. However, all feeders and waterers must be placed inside the curtain under such conditions and the number of chicks must be small enough to allow all of them to bed down inside the curtain. Costs of operation under such conditions will be high and the conditions for the caretaker are not satisfactory because of the lack of heat in the house itself.

Figure 9. Infrared lamps may be used without a hover. For best results, however, the room temperature should not fall below 40°F. The lamp fixture is suspended by chains from the ceiling. The ends of the lamps should be 18 inches above the floor the first week and then raised 3 inches each week until they are 2 feet from the floor. A paper, wood, or metal guard around the heated area on the floor during the first 6 to 8 days prevents floor drafts.



The 250-watt R 40 infra-red lamps may be used either with or without a hover. A simple homemade brooder can be constructed easily from new or used lumber, but the cost of commercial units operated without a hover is low enough to discourage home construction of a hover type brooder using infra-red bulbs.

Use the 250-watt infra-red lamp singly or in groups of two, four or more without a hover. If a single bulb is used to brood a small number of chicks, it is suspended about 18 inches above the litter; if two or more lamps are used for larger numbers of chicks, they are usually attached in pairs 22 inches apart to a fixture of the proper width and length. The fixture is suspended by chains from the ceiling.

Generally, each pair of lamps is set on the fixture at an angle of 40 degrees to one another to provide more heat on the floor. The lamps may be arranged to extend straight down from the fixture. The ends of the lamps should be 18 inches above the litter the first week. Beginning the second week, the fixture is raised 3 inches each week to increase the heated area as the chickens grow, until the lamps are 2 feet from the floor. A cardboard or metal chick guard should be placed around the heated area for 6 to 8 days when the chicks are first under the lamps. The guard prevents floor drafts.

The number of chicks brooded under one 250-watt infra-red lamp varies from 40 to 100, according to the season of the year, the construction of the house, and the minimum air temperature that can be maintained near the floor of the pen. For most satisfactory results, the room temperature should not fall below 40°F. Usually, it is not advisable to have more than 500 chicks with one unit.

If two or more lamps are in use, thermostatic controls on one or more of the lamps saves power. At least one lamp should have a hand switch so it can be turned on or off at the discretion of the operator. Porcelain sockets and wire of the necessary size should be used.

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